Partial English Translation of JPA-H10-229807

[Claim 2]

The method for forming shaped products by wrapping stuffing using fictile food dough according to claim 1, characterized in that:

the female and male dies composed of porous plastic and the like having a number of ventilation pores, the wrapping material of the fictile food dough such as fermentative dough, and the stuffing are used;

in the second step, the wrapping material is shaped into a bowl shape by lowering the male die to be inserted into the female die, the outer circumference of the female die is decompressed, the air is sucked from the inner surface of the female die, and the inside of the male die is pressurized so that blowing from the outer surface of the male die is performed to raise the male die to be separated from the female die;

in the third step, the air is continuously sucked from the inner surface of the female die, and the stuffing is supplied into the wrapping material shaped into the bowl shape; and

in the fourth step, the air is sucked from the inner surface of the female die until the plug is lowered, and the upper portion of the wrapping material protruding from the stuffing is tightened toward the axis center of the female die by stopping the suction and closing the tightening pieces right after the plug is lowered, thereby wrapping the stuffing using the wrapping material as a shaped product having a required shape.

[Claim 3]

A device for forming shaped products by wrapping stuffing using fictile food dough, comprising:

a plurality of lower structures each of which provides on a substrate a lower air chamber which supports and encloses the outer side of a female die, with an interposed shutter that has a plurality, for example, six, of openable tightening pieces supported by a frame, on the upper portion of the female die that is composed of porous plastic and the like having a number of ventilation pores and has a bowl shape with an open upper part;

a turning member that fixes the substrates of the lower structures to the upper surface at predetermined intervals and intermittently moves the predetermined intervals;

a carry-in unit that intermittently supplies a wrapping material that is fictile food dough such as a fermentative material divided by a predetermined amount into the respective female dies;

an upper structure which includes an upper air chamber in a male die that is disposed on the female die and composed of porous plastic and the like having a number of ventilation pores in a bowl shape, and also includes a raising and lowering air cylinder to shape the wrapping material into the bowl shape by inserting and separating the male die into and from the female die;

a stuffing supply unit which supplies a predetermined amount of the stuffing into the wrapping material shaped into the bowl shape in the female die;

a plug raising and lowering unit which lowers a plug to a position horizontal with the upper surfaces of the open tightening pieces;

a shutter opening and closing unit which closes the plurality of tightening pieces that tighten the upper portion of the wrapping material shaped in the bowl

shape in the female die and operates with the lowering plug to wrap the stuffing in the wrapping material as a shaped product;

a fetching unit which fetches the shaped product from the female die; and

a carry-out unit which carries out the shaped product fetched by the fetching unit,

wherein, the lower air chamber is connected to a decompression unit or to a pressurization and decompression unit to enable switching between pressurization and decompression and the upper air chamber is connected to a pressurization unit so that the carry-in unit, the upper structure, the plug raising and lowering unit and the shutter opening and closing unit, and the fetching unit and the carry-out unit are sequentially disposed at positions at which the lower structures stop, respectively, at the intervals between the lower structures along a movement direction of the turning member.

[0030]

In the fifth station St.5, as illustrated in Fig. 6(g), the rotating arm 40 of the fetching unit 38 is rotated inward from a neutral position by a proper means, the suction cup 41 fixed to the front portion of the rotating arm 40 is tipped over on the shaped product 47 in the first female die 9, the decompression device sucks the air from the suction cup 41 through the suction pipe 42 to adsorb the shaped product to the suction cup 41, the rotating arm 40 is rotated outward by substantially 180° to turn the shaped product 47 upside down, the suction cup 41 is put in the cut-out portion 43a provided in the outer end portion of the support plate 43, and the shaped product 47 having a diameter larger than that of the suction cup 42 is put on the outer end portion of the support plate 43.

[0031]

Thereafter, the fifth step is performed as below. The shaped product 47 is exposed by stopping suction from suction cup 41, the extrusion air cylinder 44 provided on the support plate 43 is moved forward, the shaped product 47 is extruded to the carry-out conveyor 39 by using the push plate 44c of the air cylinder 44, the shaped product 47 is carried out to a predetermined place by driving the conveyor 39, a rotation arm 40 is rotated inward by substantially 90°, and the rotating arm 40 and the suction cup 41 are returned to the neutral position and stop. In addition, in the fifth step, blowing from the inner surface of the female die 9 is performed.

[0032]

While the aforementioned fifth step is performed, the first to fourth steps, that is, supplying a wrapping material, shaping the wrapping material, supplying stuffing, and wrapping and shaping the stuffing in the wrapping material are performed on the fifth to second female dies 9 provided at the first to fourth stations St 1 to St.4, respectively. After the fifth step, the turning plate 2 is rotated clockwise by 60° to enable the first to sixth female dies 9 to be transferred and stopped to the sixth to first stations St.6 to St.1, respectively.

[0033]

By the fifth step, after the first female die 9 is empty, blowing is continuously performed on this female die 9 and the female die 9 is stopped at the sixth station St.6. In the first female die 9, pressured air in the lower air chamber 7 is blown from the inner surface of the first female die 9 through a number of ventilation

pores of porous plastic forming the female die 9, so as to blow flour or parts of the wrapping material remaining in the ventilation pores into the female die 9. Thereby, cleaning the inner surface of the female die 9 is performed quickly. Thereafter, pressurization in the lower air chamber 7 is released to stop blowing.